

CLAIMS

1. A rotating heat exchanger (1), with a rotatably mounted rotor (3), which has a first flow sector (4) for external air (5) and supply air (6) and a second flow sector (7) for exhaust air (8) and venting air (9), through which it runs upon rotating, and a housing (2) which encloses the rotor (3) at its periphery, characterised in that the housing (2) encasing the rotor (3) at its periphery is filled with housing or sealing air, and that the pressure of the housing or sealing air is higher than the pressure of the airflows (5, 6; 8, 9) flowing through the rotor (3).
2. The rotating heat exchanger according to claim 1, wherein peripheral seals (15, 16) are arranged between the periphery of the rotor (3) on the one hand and the housing (2) on the other hand.
3. The rotating heat exchanger according to claim 2, wherein peripheral seals (15, 16) are fixed to the housing (2).
4. The rotating heat exchanger according to any one of claims 1 to 3, wherein the pressure of the housing or sealing air can be kept at a constant pressure level.
5. The rotating heat exchanger according to any one of claims 1 to 3, wherein the pressure of the housing or sealing air can be kept at a constant differential pressure above the pressure of the airflows (5, 6; 8, 9) flowing through the rotor (3).
6. The rotating heat exchanger according to any one of claims 1 to 5, with an external or internal pressure

source, by means of which the excess pressure in the housing (2) can be produced.

7. The rotating heat exchanger according to any one of claims 1 to 6, with a control and regulating device, by means of which the operation of the pressure source can be controlled or regulated according to the signal of a pressure sensor measuring the pressure in the housing (2) and/or a pressure sensor measuring the pressure of the airflows (5, 6; 8, 9) flowing through the rotor (3).
8. The rotating heat exchanger according to any one of claims 1 to 7, the housing (2) whereof can be pressurised with non-critical housing or sealing air.
9. The rotating heat exchanger according to any one of claims 1 to 8, with airflow separation devices (19, 20) arranged running diametrically at the end faces (17, 18) of the rotor (3) between the two flow sectors (4, 7), said airflow separation devices being connected to the housing (2) and being able to be supplied with a sealing airflow (21) by means of the housing or sealing air present in the housing (2).
10. The rotating heat exchanger according to any one of claims 1 to 9, wherein a rinsing wedge-like device (22), which is connected to the housing (2) and able to be supplied with a rinsing airflow (23) by means of the housing or sealing air present in the housing (2), is provided at the end face (17) of the rotor (3) in the region of the flow sector (7) for the exhaust air (8) and venting air (9) that is arranged - in the rotary direction (11) of the rotor (3) - directly before the flow sector (4) for external air (5) and supply air (6).

11. The rotating heat exchanger according to any one of claims 1 to 10, with a temperature-regulating device, by means of which the housing or sealing air can, e.g. for the purpose of anti-icing, be temperature-regulated.
12. The rotating heat exchanger according to any one of claims 1 to 11, wherein the housing or sealing air can be taken from the supply air and/or the external air system of the rotating heat exchanger (1).
13. The rotating heat exchanger according to any one of claims 1 to 12, wherein nozzle devices are provided on the housing (2), through which nozzle devices housing or sealing air can be directed onto a bearing (10) of the rotor (3).
14. A method for sealing a rotating heat exchanger (1), characterised in that a housing (2) enclosing a rotor (3) of the rotating heat exchanger (1) at the periphery of the rotor (3) is pressurised with housing or sealing air and the pressure of the housing or sealing air in the housing (2) is kept above the pressure level of airflows (5, 6; 8, 9) flowing through the rotor (3) of the rotating heat exchanger (1).
15. The method according to claim 14, wherein the pressure level of the housing or sealing air in the housing (2) is kept constant.
16. The method according to claim 14, wherein the pressure level of the housing or sealing air in the housing (2) is kept above the pressure level of the airflows (5, 6; 8, 9) flowing through the rotor (3) by a constant differential pressure.

17. The method according to any one of claims 14 to 16, wherein the pressure level of the housing or sealing air in the housing (2) is controlled or regulated in dependence on the pressure level in the housing (2) and/or the pressure level of the airflows (5, 6; 8, 9) flowing through the rotor (3).
18. The method according to any one of claims 14 to 17, wherein the housing (2) is pressurised with non-critical housing or sealing air.
19. The method according to any one of claims 14 to 18, wherein airflow separation devices (19, 20) arranged at the end faces (17, 18) of the rotor (3) are supplied from the housing (2) with housing or sealing air.
20. The method according to any one of claims 14 to 19, wherein a rinsing wedge-like device (22) of the rotor (3) is supplied from the housing (2) with housing or sealing air as rinsing air.
21. The method according to any one of claims 14 to 20, wherein the housing or sealing air is temperature-regulated.
22. The method according to any one of claims 14 to 21, wherein the housing or sealing air is taken from the supply air and/or external air system of the rotating heat exchanger (1).
23. The method according to any one of claims 14 to 22, wherein bearings (10) of the rotor (3) are acted upon by housing or sealing air.